

CLAIMS

1. A recording data-recording method for recording of recording data encrypted based on a
5 predetermined encryption code on a multilayer optical recording medium comprising N (N is a natural number not smaller than 2) recording layers deposited on at least on one side of a substrate,

wherein a distance between a first reference
10 point in an M-th one (M is a natural number not larger than N) of the recording layers, as counted from an incident direction of a reproduction laser beam or a recording laser beam, and a second reference point in an L-th one (L is a natural number not larger than N
15 and other than M) of the recording layers, as counted from the incident direction is obtained, and the recording data is encrypted using distance information enabling identification of the obtained distance as the encryption code.

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2. The recording data-recording method as claimed in claim 1,

wherein an angle of intersection of a first segment passing through one of the first reference
25 point and the second reference point, and a third reference point in a K-th one (K is a natural number not larger than N and includes a same number equal to M or L) of the recording layers, as counted from the incident direction, and a second segment passing
30 through the first reference point and the second reference point is obtained, and the recording data is encrypted using angle information enabling identification of the obtained angle as part of the encryption code.

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3. The recording data-recording method as

claimed in claim 1,

wherein program data is recorded which is read out by a reproduction device, and causes the reproduction device to obtain the distance between the first reference point and the second reference point as the encryption code, and decrypt the encrypted recording data based on the obtained encryption code.

4. The recording data-recording method as claimed in claim 2,

wherein program data is recorded which is read out by a reproduction device, and causes the reproduction device to obtain the distance between the first reference point and the second reference point as the encryption code, and decrypt the encrypted recording data based on the obtained encryption code.

5. The recording data-recording method as claimed in claim 3,

wherein the program data is recorded in any one of a data recording area, a lead-in area, and a lead-out area in the multilayer optical recoding medium.

6. The recording data-recording method as claimed in claim 4,

wherein the program data is recorded in any one of a data recording area, a lead-in area, and a lead-out area in the multilayer optical recoding medium.

7. The recording data-recording method as claimed in claim 3,

wherein the program data is recorded in one of an area which is first accessed by the reproduction device when the multilayer optical recording medium is loaded, and an area designated by area information recorded in the area first accessed by the reproduction device.

8. The recording data-recording method as claimed in claim 5,

wherein the program data is recorded in one of an area which is first accessed by the reproduction device when the multilayer optical recording medium is loaded, and an area designated by area information recorded in the area first accessed by the reproduction device.

9. The recording data-recording method as claimed in claim 3,

wherein the program data is recorded as part of the encrypted recording data, or part of management information on the recording data.

10. The recording data-recording method as claimed in claim 5,

wherein the program data is recorded as part of the encrypted recording data, or part of management information on the recording data.

11. The recording data-recording method as claimed in claim 7,

wherein the program data is recorded as part of the encrypted recording data, or part of management information on the recording data.

12. A recording data-reproducing method for decrypting and reproducing the recording data recorded by the recording data-recording method claimed in any one of claims 1 to 11,

wherein the distance between the first reference point and the second reference point of the multilayer optical recording medium on which the recording data is recorded as an object to be reproduced is obtained, and the recording data is decrypted using distance information enabling identification of the obtained

distance as the encryption code.

13. The recording data-reproducing method as claimed in claim 12,

5 wherein an angle of intersection of the first segment and the second segment of the multilayer optical recording medium on which the recording data is recorded as the object to be reproduced is obtained, and the recording data is decrypted using angle
10 information enabling identification of the obtained angle as part of the encryption code.

14. A recording device that is capable of recording the recording data by the recording data-
15 recording method claimed in any one of claims 1 to 11, comprising:

 a turntable that holds and rotates the multilayer optical recording medium, a pickup that emits the reproduction laser beam or the recording laser beam to
20 the multilayer optical recording medium held on said turntable, a moving mechanism that moves said pickup along a direction of radius of the multilayer optical recording medium, and a control section that controls rotation of said turntable and motion of said pickup by
25 said moving mechanism and executes encryption of the recording data based on the encryption code,

 wherein said control section causes said pickup to emit the reproduction laser beam to the M-th recording layer and the L-th recording layer while
30 causing said turntable to rotate and said moving mechanism to move said pickup, calculates the distance between the first reference point and the second reference point based on a rotational angle of said turntable and an amount of movement of said pickup by
35 said moving mechanism when said pickup emits the reproduction laser beam to the first reference point,

and a rotational angle of said turntable and an amount of movement of said pickup by said moving mechanism when said pickup emits the reproduction laser beam to the second reference point, and encodes the recording data using distance information enabling identification of the calculated distance as the encryption code.

15. A reproduction device that is capable of reading out the recording data recorded by the recording data-recording method claimed in claim 1 or 2, from the multilayer optical recording medium to decrypt the recording data, and then reproducing the recoding data, comprising:

a turntable that holds and rotates the multilayer optical recoding medium, a pickup that emits the reproduction laser beam to the multilayer optical recording medium held on said turntable, a moving mechanism that moves said pickup along a direction of radius of the multilayer optical recoding medium, a storage section that stores program data which causes the reproduction device to obtain the distance between the first reference point and the second reference point as the encryption code, and decrypt the encrypted recording data based on the obtained encryption code, and a control section that controls rotation of said turntable and motion of said pickup by said moving mechanism, as well as obtains the encryption code and executes decryption of the recording data based on the obtained encryption code according to the program data,

wherein said control section causes said pickup to emit the reproduction laser beam to the M-th recording layer and the L-th recording layer while causing said turntable to rotate and said moving mechanism to move said pickup, calculates the distance between the first reference point and the second reference point based on a rotational angle of said

turntable and an amount of movement of said pickup by
said moving mechanism when said pickup emits the
reproduction laser beam to the first reference point,
and a rotational angle of said turntable and an amount
5 of movement of said pickup by said moving mechanism
when said pickup emits the reproduction laser beam to
the second reference point, and encodes the recording
data using distance information enabling identification
of the calculated distance as the encryption code.

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16. A multilayer optical recording medium that
is capable of recording the recording data by the
recording data-recording method claimed in claim 1 or 2,
wherein program data is recorded which is read
15 out by a reproduction device, and causes the
reproduction device to obtain the distance between the
first reference point and the second reference point as
the encryption code, and decrypt the encrypted
recording data based on the obtained encryption code.

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17. The multilayer optical recording medium as
claimed in claim 16,

wherein the program data is recorded in any one
of a data recording area, a lead-in area, and a lead-
25 out area in the multilayer optical recording medium.

18. The multilayer optical recording medium as
claimed in claim 16,

wherein the program data is recorded in one of an
30 area which is first accessed by the reproduction device
when the multilayer optical recording medium is loaded,
and an area designated by area information recorded in
the area first accessed by the reproduction device.

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19. The multilayer optical recording medium as
claimed in claim 17,

wherein the program data is recorded in one of an area which is first accessed by the reproduction device when the multilayer optical recording medium is loaded, and an area designated by area information recorded in the area first accessed by the reproduction device.

20. The multilayer optical recording medium as claimed in claim 16,
wherein the program data is recorded as pre-pits.

21. The multilayer optical recording medium as claimed in claim 17,
wherein the program data is recorded as pre-pits.

22. The multilayer optical recording medium as claimed in claim 18,
wherein the program data is recorded as pre-pits.

23. The multilayer optical recording medium as claimed in claim 19,
wherein the program data is recorded as pre-pits.